

## CLAIMS

What is claimed is:

1. A fluid bypass valve configured to be placed within a bypass passage defined by a component, the bypass valve comprising:

a valve housing defining an elongated bypass passage having a first valve seat, said bypass passage communicating with a fluid supply and a fluid return;

a thermally responsive actuator which moves the valve bearing element between the open and closed positions;

a sliding valve element disposed within the valve housing;

first and second intermediate helical springs annularly disposed about the sliding valve element ;

a valve seal which is engageable with the first valve seat having a closed position for preventing oil flow through the elongated bypass passage, and further having an open position for allowing bypass oil fluid from the fluid supply line back to the fluid return line; and

wherein the first spring engaged between said sliding valve element and said valve housing and operative to urge said sliding valve element away said first valve seat and wherein the second spring is engaged between said sliding valve element and said valve seal and operative to urge said valve seat toward said valve seat.

2. The fluid bypass valve of Claim 1 wherein said valve housing defines a bypass aperture, whereby said valve member is inserted into said bypass passage through said aperture.

3. The fluid bypass valve of Claim 2 wherein said thermally responsive actuator is coupled to the valve housing.

4. The fluid bypass valve of Claim 3 wherein said sliding valve element defined a valve seal stop.

5. The fluid bypass valve of Claim 4 wherein said valve seal stop is a snap ring.

6. The fluid bypass valve of Claim 1 wherein said sliding valve element has a first outer bearing surface which is configured to engage a first end of the first intermediate spring.

7. The fluid bypass valve of Claim 1 wherein said sliding valve element has a second exterior bearing surface which is configured to engage a first end of the second intermediate spring.

8. The fluid bypass valve of Claim 7 wherein said sliding valve element has a second exterior bearing surface is a cylindrical valve element bearing surface.

9. The fluid bypass valve of Claim 8 wherein the sliding valve element bearing surface slidably supports the valve seal and regulates the movement of the valve seal toward and away from the valve seat.

10. The fluid bypass valve of Claim 1 wherein said thermally responsive actuator comprises a retractable piston, said thermally responsive actuator is configured to retract said piston and thereby position the sliding valve element in an open position.

11. The fluid bypass valve of Claim 10 wherein said valve housing defines an aperture, whereby said thermally responsive valve member is inserted into said bypass passage through said aperture.

12. The fluid bypass valve of Claim 11 wherein said thermally responsive actuator comprises a retractable piston, said thermally responsive actuator is configured to retract said piston and thereby position a valve seal stop on the sliding valve element in an open position.

13. The fluid bypass valve of Claim 1 wherein said an exterior surface of the valve housing and said aperture define a cavity fluidly coupled to the elongated through passage.

14. A fluid bypass valve configured to be placed within a bypass passage defined by a component, the bypass valve comprising:

a valve housing defining an elongated bypass passage having a first valve seat, said bypass passage communicating with a fluid supply and a fluid return;

a thermally responsive actuator which moves the valve bearing element between the open and closed positions;

a sliding valve element disposed within the valve housing, said sliding valve element defined a valve seal stop and a first outer bearing surface which is configured to engage a first end of the first intermediate spring, said sliding valve element has a second exterior bearing surface which is configured to engage a first end of the second intermediate spring;

first and second intermediate helical springs annularly disposed about the sliding valve element ;

a valve seal which is engageable with the first valve seat having a closed position for preventing oil flow through the elongated bypass passage, and further having an open position for allowing bypass oil fluid from the fluid supply line back to the fluid return line; and

wherein the first spring is operably engaged between said sliding valve element and said valve housing and operative to urge said sliding valve element away said first valve seat and wherein the second spring is engaged between said sliding valve element and said valve seal and operative to urge said valve seal toward said valve seat.

15. The valve according to Claim 14 wherein the thermally responsive element is disposed within the valve bearing element.

16. The valve according to Claim 14 wherein the thermal element is fixably coupled to an interior surface of the through passage valve body.

18. A fluid bypass valve configured to be placed within a bypass passage defined by a component, the bypass valve comprising:

a valve housing defining an elongated bypass passage having a first valve seat, said bypass passage communicating with a fluid supply and a fluid return;

a thermally responsive actuator which moves the valve bearing element between the open and closed positions;

a sliding valve element disposed within the valve housing, said sliding valve element defined a valve seal stop and a first outer bearing surface which is configured to engage a first end of a first intermediate spring, said sliding valve element has a second exterior bearing surface which is configured to engage a first end of a second intermediate spring, said first and second intermediate helical springs being annularly disposed about the sliding valve element; said sliding valve element defining a cylindrical valve element bearing surface which slidably supports a valve seal, the valve seal being engageable with the first valve seat having a closed position for preventing oil flow through the elongated bypass passage, and further having an open position for allowing bypass oil fluid from the fluid supply line back to the fluid return line; and

wherein the first spring is engaged between said sliding valve element and said valve housing and is operative to urge said sliding valve element away said first valve seat and wherein the second spring is engaged between said sliding valve element and said valve seal and operative to urge said valve seal toward said valve seat.

19. The fluid bypass valve of Claim 18 wherein said valve housing defines an outer surface having an exterior diameter smaller than the exterior diameter of the aperture, the outer surface configured to define a cavity with an interior surface of the aperture.

20. The valve according to Claim 18 wherein the thermally responsive element is disposed within the valve bearing element.